



Electric and Magnetic Field (EMF) Radiation from Power Lines

Electric and magnetic fields (EMF) are invisible lines of force that surround any electrical device that is plugged in and turned on. EMF are made up of waves of electric and magnetic energy moving together (radiating) through space. Electric fields are produced by charges and magnetic fields are produced by the flow of current through wires or electrical devices. EMF is commonly associated with power lines. A person standing directly under a high-voltage transmission line may feel a mild shock when touching something that conducts electricity. These sensations are caused by the strong electric fields from the high-voltage electricity in the lines. They occur only at close range because the electric fields rapidly become weaker as the distance from the line increases.

Many people are concerned about potential adverse health effects. Much of the research about power lines and potential health effects is inconclusive. Despite more than two decades of research to determine whether elevated EMF exposure, principally to magnetic fields, is related to an increased risk of childhood leukemia, there is still no definitive answer. The general scientific consensus is that, thus far, the evidence available is weak and is "not sufficient to establish a definitive cause-effect relationship."

In 1998, an expert working group, organized by the National Institutes of Health's National Institute of Environmental Health Sciences (NIEHS), assessed the health effects from exposure to extremely-low-frequency EMF, like those you would find in a home with power lines close by. Based on studies about childhood leukemia that involved a large number of households, they found that power line frequency magnetic fields are a possible cause of cancer. The NIEHS working group also concluded that the results of EMF animal, cellular, and mechanistic studies do not confirm or refute the finding of the human studies.

Who is protecting you?

In the U.S., there are no federal standards limiting occupational or residential exposure to power line EMF. About seven states set standards for the width of right-of-ways under high-voltage transmission lines because of potential for electric shock.

What can you do to protect yourself?

People concerned about possible health risks from power lines can reduce their exposure by:

- **Increasing the distance between you and the source** – The greater the distance between you and the power lines the more you reduce your exposure.
- **Limiting the time spent around the source** – Limit the time you spend near power lines to reduce your exposure.

Resources

You can explore this radiation source further through the resources at the following URL:

<http://www.epa.gov/radtown/power-lines.html#resources>

We provide these resources on-line rather than here so we can keep the links up-to-date.